



Soil Treatment Continues/Groundwater Cleanup to Begin

U.S. Environmental Protection Agency (EPA)
Eastland Woolen Mill Superfund Site, Corinna ME
Community Update # 11

April 2003

Introduction:

During 2002, EPA continued to make significant progress at the Eastland Woolen Mill Superfund Site. EPA completed full scale testing of the innovative soil treatment system under the non-time-critical removal action (NTCRA) or early cleanup, and signed a Record of Decision to address the groundwater contamination. EPA also identified several activities that must be completed before a final cleanup decision can be proposed for the sediment and floodplain soil of the East Branch of the Sebasticook River (EBSR) and the Old Dump.

There are three distinct phases of on-going activity at the Eastland Woolen Mill Site. These phases are referred to as:

- Early Cleanup or Non-Time-Critical Removal Action (NTCRA): This is the soil cleanup that has been underway in downtown Corinna.
- Groundwater Cleanup or Operable Unit I (OU I) Cleanup: This is the recent cleanup decision to address the contaminated groundwater beneath the former Eastland Woolen Mill and downtown area.
- EBSR Sediments and Floodplain or Operable Unit II (OU II): The final investigation activities for the sediments and floodplain soil of the EBSR will be completed in 2003. A final cleanup proposal for OU II is expected to be released in late 2003 or early 2004.

See Figure 1 for the areas included within OU I and OU II.

You are invited to a Public Information Meeting

April 30, 2003

7:00 p.m.

Corinna School Gymnasium

At the April 30th meeting, EPA will provide and update of the Site activities and an overview of the upcoming activities.

Early Cleanup (NTCRA) Summary:

The two major activities at the site in 2002 were:

- Completion of the NTCRA activities in areas outside of the current work zone (making portions of the Site available for re-use).
- Installation and performance testing of the innovative soil treatment system ("soil treatment system").

Figure 2 shows the current NTCRA work areas and the areas that have been made available for re-use.

EPA initiated the treatment of contaminated soil in 2002 with the construction of the soil treatment system. Three soil treatment units were installed in 2002 and a fourth treatment unit was installed in April 2003. Each soil treatment unit has two treatment beds capable of processing between 280 and 500 tons of soil at one time.

The soil treatment system works by injecting hot vapor into a bed of soil to remove the contamination and allow for the recovery of the

contamination from the vapor. **Figure 3 shows a schematic of the soil treatment system.**

During the performance testing, the soil treatment system demonstrated an ability to remove greater than 80% of the chlorinated benzene contamination from the soil. Of the 14,000 tons of soil that were treated in 2003, approximately 10,800 tons were successfully treated and either placed in a stockpile for future use or spread as backfill. The soil that did not meet the soil cleanup levels was placed back into the contaminated soil stockpile.

EPA established the initial soil cleanup levels in the July 1998 Action Memorandum. The soil cleanup levels were set at a level that would result in soil that would be safe for human contact, and that would not allow leaching of contaminants that would make the groundwater unsuitable for drinking. These soil cleanup levels were used to guide the excavation of the contaminated soil.

The past year has provided EPA an opportunity to perform Site specific testing to evaluate the leaching potential of the soil that has been treated. Based on the results of these tests, EPA has concluded that certain soil cleanup levels can be set at a higher concentration than the original soil cleanup levels and still result in soil that is safe for human contact and achieve the same level of groundwater protection as the original soil cleanup levels. **Table 1 shows the original soil cleanup levels and the revised soil cleanup levels.**

Table 1

	Original 1999 Soil Cleanup Levels	Revised 2003 Soil Cleanup Levels
1,2,4 Trichlorobenzene	5 mg/kg	15 mg/kg
1,4 Dichlorobenzene	2 mg/kg	3 mg/kg
Chlorobenzene	1 mg/kg	3 mg/kg

Treated soil that does not meet the target cleanup levels will be shipped to a facility off site.

The treatment of contaminated soil is expected to last for six-seven months in 2003 and continue for several months into 2004. EPA has a project goal of completing all treatment work and repairing the impacted areas by the end of 2004.

Groundwater Cleanup (Operable Unit I)

On September 19, 2002, EPA signed a Record of Decision finalizing the cleanup plan for the groundwater contamination at the Eastland Woolen Mill Site. The goal of the OU I groundwater cleanup is to prevent human ingestion of contaminated groundwater and to restore the contaminated groundwater to drinking water standards.

To accomplish this objective, the OU I groundwater cleanup includes the following activities:

- Extraction and treatment of the contaminated overburden and bedrock groundwater. The extraction system will be designed to prevent off-site migration of contaminated groundwater and restore the aquifer to drinking water standards.
- In-situ treatment of the contaminated overburden and bedrock groundwater and remaining areas of contaminated soil/DNAPL. A chemical reagent (e.g., Fenton's Reagent or another oxidizing agent) will be added to the overburden and bedrock aquifer to reduce the mass of contaminants in the system. If the mass reduction is not sufficient to achieve cleanup levels, then enhanced flushing (using surfactants/solvents) and biological degradation (using bio-stimulants) may be attempted to further reduce the mass of contamination. **Figure 4 provides a plan view of the areas that will be subject to in-situ treatment.**

- Certain residences will be connected to the public water supply in order to protect private wells from contamination and to prevent expansion of the contaminated groundwater plume.
- Implementation of groundwater use restrictions (e.g. restrictive covenants) to prevent ingestion of groundwater and disturbance of the groundwater extraction and treatment system. **Figure 5 shows the extent of contaminated groundwater and the current extent of the institutional control zone.**
- Long-term monitoring of groundwater, surface water and sediments to evaluate the success of the remedial action.
- Implementation of five-year reviews to assess the protectiveness of the remedy until cleanup goals have been met.

The next step for the OU I groundwater cleanup will be to complete a design for the cleanup. Some initial investigation activities will be required to update the groundwater contaminant delineation and further evaluate the connectivity of the bedrock fractures. In order to minimize any impact to the re-development of the site, EPA will work with the Town of Corinna to select a location for the long-term groundwater treatment system building. EPA and the Maine Department of Environmental Protection (MEDEP) will enter into a Superfund State Contract to confirm that the MEDEP will pay ten percent of the cleanup costs for construction, pay ten percent for the first ten years of operation of the groundwater treatment system and assume 100% of the operation and maintenance responsibility, thereafter.

The design program should occur in 2003 with construction of the treatment system and installation of the in-situ application system in 2004.

EBSR River Sediments and Floodplain Soils and Old Dump (Operable Unit II):

Sediments and Floodplain Soil:

The comprehensive investigation program implemented by EPA from 1998 - 2002 confirmed widespread impacts from the operation of the former Mill on the downstream river sediments and floodplain areas. Specific findings include:

- Elevated levels of the chlorinated benzene compounds, several metals (cadmium, chromium, copper, lead, and zinc), PAHs, dioxin, and several pesticides (dieldrin, DDT, DDD, DDE,) have been detected in the sediment and floodplain soil.
- Many of the metals (particularly cadmium) were found at elevated concentrations in a few discrete locations.
- While dieldrin appears to be related to the activities at the Eastland Woolen Mill, other pesticides (DDT, DDD, DDE, and gamma chlordane) as well as the PAHs may be non-Site related and of non-point source origin.
- Fish tissue contains pesticides, including dieldrin, and dioxin.

Figures 6 - 8 show the areas of the East Branch of the Sebasticook River and floodplain with elevated levels of contamination.

Human Health and Ecological Risk Summary for Sediments and Floodplain soil of EBSR:

A Human Health and Ecological Risk Assessment Report was completed by EPA to assess the potential impacts of the contamination present in the sediment, floodplain soil, and at the Old Dump. The evaluation of human health and ecological risk that may result from exposure to the contaminated sediments and floodplain indicated that:

- Human contact with the sediments and floodplain soils should not present a health problem.
- Human contact with the surface water should not represent a health problem
- Ingestion of fish by people has a low level of potential health risk.
- Sediment in certain areas was toxic to benthic invertebrates in lab toxicity tests.
- Certain contaminants, including dieldrin, are found in sediments above levels that could impact wildlife through dietary exposure.
- Effects of floodplain soil on seed germination could result in the scarcity of certain plant species that are sensitive to the contaminants.
- Floodplain soil contaminants may be having an impact on wildlife through dietary exposure.

Old Dump:

An area of debris that contains both miscellaneous material from the former Mill as well as domestic solid waste, is located along the East Branch of the Sebasticook, about one mile downstream of the Mill complex. The area covers about 4 acres and contains about 45,000 cubic yards of waste material. Empty drums are found scattered along the river bank.

Human Health and Ecological Risk Summary for the Old Dump:

- There is not a human health threat to persons visiting the Old Dump.
- Concentrations of contamination found in the overburden groundwater is not safe for consumption. The overburden groundwater within the Old Dump is not considered to be a usable source of water.
- A low level threat to terrestrial wildlife (diet uptake) and invertebrates (direct toxicity) exists for the Old Dump.

- Groundwater discharging from the Old Dump may have an adverse effect on benthic organisms in the braided stream nearest the Old Dump.

Fish:

EPA fish sampling identified mercury, dieldrin, PCBs, and dioxin as contaminants of concern in the fish. EPA has concluded that mercury detected in fish near the Site is most likely attributable to a State-wide problem of mercury contamination in all Maine inland waters, and is not associated with past contamination on-Site. The dieldrin is likely to be Site related. **Please refer to, and comply with, the Maine Department of Inland Fisheries and Wildlife, *Open Water Fishing Regulations*, for details about the statewide fish consumption advisory. This advisory applies to all warm water fish species in Maine inland waters due to mercury contamination.**

What will be done about this contamination?

The decision regarding the EBSR sediments and floodplain soil (and the Old Dump) is very complex. The absence of a significant threat to human health, which is good news, shifts the focus of the cleanup decision to the ecological impacts. EPA's goal in protecting the environment is to address contamination that threatens the biological integrity of the area. Absent the presence of threatened or endangered species, the cleanup decision is made based on the extent to which the biological community is impacted rather than whether any particular individual organism could be affected. As a result it becomes very important to focus on the Site-specific data and circumstances to evaluate the need for a cleanup.

For OU II, the cleanup decision will focus on the following questions:

- How extensive are the impacts to the benthic community in the EBSR?
- Does the contamination accumulate in the prey (food items like worms, crayfish, etc.) for certain animals (mink, racoon, and short-tailed shrew), and is the concentration detected in the prey at a concentration that would result in adverse effects for the predator.

During the spring and summer of 2003, EPA plans to collect additional data regarding the benthic community and food chain. This will allow for a better understanding of the magnitude of the impacts. Based on the data already collected and presented in the remedial investigation and this new information, EPA will evaluate whether a cleanup action is needed to address the impacts in the floodplain soil and sediments of the EBSR or the Old Dump.

Schedule:

Activities planned for 2003:

- Treatment of soil
- Design of the Operable Unit I groundwater cleanup action
- Completion of additional studies to better define the severity of the impact to the environment from the dieldrin and chlorinated benzene compounds in the sediments and floodplain

Activities planned for 2004

- Completion of the soil treatment (including the grading of the areas used for soil processing and treatment).
- Completion of the design and the initiation of the installation of the Operable Unit I groundwater cleanup action.
- Final cleanup decision for the downstream sediments, floodplain soil, and Old Dump.

Technical Assistance Grant

An EPA Technical Assistance Grant has been awarded to the Seabasticook Committee for a Clean Environment (SCCE). SCCE is also available to assist the public with any questions regarding the Site. The SCCE is able to access technical experts to obtain an independent opinion of the information provided by EPA. The meeting times for the SCCE are posted on the www.cattailpress.com website. SCCE board members are: Linda Smith, Jackie Emerson, Ken Dow, Don McDougal, Tom Hannula and Everett Simpson.

Should you have questions on our cleanup, feel free to contact a board member, or for environmental technical questions, you can contact Mike Deyling at Summit Environmental (207) 795-6009, 95 Main Street, Auburn, ME 04210, mdeyling@summitenv.com.

If you have questions or concerns about the Eastland Woolen Mill Superfund Site, please contact one of the following officials:

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For questions regarding ongoing site activities contact EPA's construction manager, Rick Leighton at (207) 278-7416.

All of the Site information is available for public review at the Corinna Town Library or EPA Record Center in Boston, MA.